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Financial Liberalization and Allocative Efficiency of Capital

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Abstract

Financial liberalization may have a positive effect on growth not only through the increase in the quantity of the available funds, but also through a more efficient allocation of resources across firms and sectors. Despite this intuitive appeal, there is little empirical evidence on the positive effect of financial liberalization on capital allocation. The main difficulty of investigating the linkage between liberalization of financial markets and capital allocation efficiency lies in the fact that the efficiency of capital allocation is not directly observable. One way to address this issue is to evaluate the effect of financial liberalization within the Heckscher-Ohlin framework. Producing and exporting products inconsistent with a country's factor endowments constitutes a serious misallocation of the funds, which undermines competitiveness of the economy and inhibits its long run growth. This paper tests the allocative efficiency hypothesis by evaluating the effect of stock market liberalization on the survival of different product categories using export data for 91 countries over the period of 1975–2003. Preliminary results suggest that after liberalization of the domestic stock market, products employing intensively scarce factors exit at a relatively higher rate from a country's export portfolio. In other words, following liberalization episodes, a country tends to rebalance its export portfolio towards products consistent with its factor's endowments.

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Financial Liberalization and Allocative Efficiency of Capital*

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1 Introduction

Academic economists and practitioners have long debated over the effects of financial liberalization on growth. Many question its usefulness for developing countries, where it is associated with large macroeconomic fluctuations, financial bubbles, banking crises and deep economic recessions (Kaminsky and Reinhart, 1999; Bhagwhati, 1998; Rodrik, 1998; Stiglitz, 2000, 2002). Others point out its beneficial effect on output growth, investment and quality of institutions (Levchenko et al., 2009; Gupta et al., 2009; Quinn and Toyoda, 2009; Bekaert et al., 2005). Yet, the cost of capital and associated growth in investment following financial liberalization appears rather modest in comparison to the large GDP growth effect (Bekaert and Harvey, 2005; Henry, 2000, 2003). Therefore, financial liberalization may have a positive impact on growth through its effect on the efficiency of allocation of resources in an economy (quality effect), rather than through the quantity of mobilized capital (quantity effect).

The main difficulty in empirically testing this hypothesis lies in the fact that allocation efficiency is not directly observable. Many empirical studies test the allocation efficiency hypothesis of financial liberalization by analyzing the behavior (variance) of the marginal rate of capital or Tobin's q around liberalization episodes. Chari and Henry (2003) analyze the behavior of prices and investment around the liberalization episodes. They find that firms experience a significant increase in both investment and Tobin's q shortly after stock market liberalization. Abiad et al. (2007) look at the dispersion of expected marginal returns to capital before and after financial liberalization. They find that financial liberalization decreases the variability of the marginal return of capital supporting the view that financial liberalization facilitates the equalization of the marginal return of capital across sectors and, therefore, promotes more efficient allocation of funds. Using firm level data for twelve developing countries, Galindo et al. (2005) construct a summary index of the efficiency of investment allocation. They show that following financial liberalization the investment allocation efficiency index increases suggesting that the link between investment and firms fundamentals become stronger following financial liberalization. Other studies attempt to test the allocative efficiency hypothesis by looking at the rise in investment flows to individual firms after financial liberalization. The increase in investment flow to more productive firms (with highest total factor productivity) following financial liberalization is interpreted as an improvement in allocation efficiency. (Jaramillo et al., 1992; Siregar, 1992)

This paper is a first attempt to analyze the effects of financial liberalization on the allocation of resources in the economy using trade theory perspective. A country should trade according to its comparative advantage which may be defined either in terms of its factor endowments (Heckscher-Ohlin) or in terms of its relative labor productivity. Export pattern not consistent with the comparative advantage is a sign of resource misallocation in the economy. In this empirical investigation, I rely on the Heckscher-Ohlin framework which states that a country should export products that use abundant factors in their production and import products that use scarce factors.[1] Indeed, the sectors that rely on the scarce factors of the economy are the less efficient ones, because they have higher costs of production and lower export growth opportunities. However, these predictions may not hold in the presence of market frictions. Weak property right protection, agency problem, asymmetric information or active industrial policy pursued by the government alter the borrowing constraints of

[1] There are several reasons behind this choice. First of all, there is no productivity data available at the product level, which prevents me to account for Ricardian comparative advantage in my empirical analysis. Second, it is shown that the Ricardian and the HO models are empirically separable and that ignoring the Ricardian terms of comparative advantage does not bias the results of the empirical test of the HO model. Finally, the HO comparative advantage model seems to empirically outperform the Ricardian model (Morrow, 2008).

industries. As a consequence, the difference in borrowing constraints across industries shapes the sectoral composition of a country's exports making it different from the "efficient" one. This misallocation of funds across sectors inhibits growth and undermines the competitiveness of the economy in the long run. Theoretically, financial liberalization may improve efficiency of domestic financial intermediaries and have beneficial effects on allocation of investment in an economy by increasing competition in the domestic financial markets. I empirically test this hypothesis by looking at the entry and exit dynamics of different products in the country export portfolio before and after financial liberalization.

My results suggest that the products that lie far from the country's comparative advantage set have a relatively higher exit rate following the liberalization of financial markets. In other words, financial liberalization tends to rebalance the composition of the country's export portfolio towards the products that use intensively the economy's abundant factors.

This paper contributes to three strands of literature. First, it contributes to the empirical literature which analyzes the effect of capital account or equity market liberalization on resource allocation in an economy. Most of these empirical studies test the allocation efficiency hypothesis of financial liberalization indirectly by looking at the behavior (variance) of the marginal rate of capital or Tobin's q around liberalization episodes (Chari and Henry, 2003; Abiad et al., 2007; Galindo et al., 2005). This study takes a different approach by testing the allocation efficiency through the analysis of the country's exporting patterns following financial liberalization. In this context, allocation efficiency implies the alignment of a country's exporting pattern with its factor endowments.

Second, it contributes to papers studying the link between financial development and export performance. Manova (2008) and Iacovone and Zavacka (2009) show that shocks in the supply of loanable funds have a significant effect on the export performance of the sectors depending on external financing. Beck (2003) and Svaleryd and Vlachos (2005) find that financially developed countries tend to specialize in sectors relying intensively on external financing. This paper investigates a different channel through which financial liberalization may improve a country's export performance by examining the role of financial liberalization in preventing inefficient exporting patterns.

Finally, this paper shares important similarities with studies analyzing the allocative function of financial markets. Wurgler (2000) shows that the rate of investment growth is closely associated with contemporaneous value added growth in countries characterized by strong developed financial markets, suggesting that financially developed countries invest more in fast- growing industries and invest less in declining industries. Black and Strahan (2002), Cetorelli and Strahan (2004), Betrand et al. (2007) study the allocative efficiency within the context of domestic banking deregulation. They show that the banking reforms are associated with new firm creation, reduction in the level of product market concentration and improvement in the allocation of assets and jobs across firms.

Based on the portfolio theory, Acarya et al. (2008) show that inter- and intra-states branch liberalization spur the reallocation of capital within the states according to the mean variance efficiency. Jaud et al. (2010) find that countries with more developed banking sectors tend to export products consistent with their comparative advantages. In particular, using the Cox Proportional Hazard framework (Cox 1972), they show that products relying intensively on scarce factors tend to have a shorter export life than products relying on abundant factors in countries with better developed banking system. While this paper uses a similar framework as Jaud et al. (2010), it extends the former in several dimensions. First, I investigate a different hypothesis. Financial liberalization is a process of elimination of various restrictions on financial markets such as the removal of credit controls, interest rate controls, bank entry barriers or restrictions on international financial transactions. It is associated with a reduction of the role of government and an increase in the role of market

in allocation of credit. Financial liberalization affects the incentives with which credit is allocated by bringing more freedom to agents in making financial decisions. While most scholars agree that more developed financial markets promote an efficient allocation of funds across sectors and firms, there is much less consensus about the beneficial effect of financial liberalization on allocative efficiency. In fact, deregulation of financial markets in some Asian and Latin America countries is accompanied by large macroeconomic fluctuations and banking crises. Several studies point out that financial liberalization, in the presence of overall market imperfections, may increase capital misallocation in the economy by triggering speculative behavior of financial intermediaries (Allen and Gale, 2000; Schneider and Tornell, 2004; Tresell and Verdier, 2007). Second, for the purpose of my analysis I use a different database which is based on more aggregated data from the COMTRADE database (SITC 4 and 5 digits) covering longer time period, 1975-2003. Third, I verify my hypothesis using an alternative estimation procedure by analyzing the effect of financial liberalization on the probability of entry and exit using fixed effect logit regression. In addition, I estimate the effects of financial liberalization on the overall distance of the country's export to comparative advantage. This allows me to identify the aggregate effect of financial liberalization on the country's export pattern. Finally, I investigate the channels through which financial liberalization may promote more efficient allocation of resources in the economy.

In my analysis, I focus on external capital account liberalization and primarily on stock market liberalization. My choice is mostly dictated by the data availability. The data on domestic financial liberalization (domestic bank liberalization) is scarce and fragmented. I rely primarily on stock market liberalization for several reasons. First, while broad indices of financial liberalization show little time variation, stock market liberalization constitutes a radical shift in the degree of capital account openness, which provides sufficient variation to identify its effect. Second, broad indices comprise various aspects of capital account liberalizations. When they change, it is not clear which of the many possible restrictions are eliminated. Therefore, looking at one aspect of financial liberalization allows me to better identify causal links. Third, there is a clear theoretical prediction concerning the effect of stock market liberalization on the cost of capital and investment in the liberalizing countries. Finally, the timing of stock market liberalization coincides with a period of net capital inflows for most developing countries. With the sole exception of Malaysia, there was no reversal of freedom of foreign access after stock market liberalization (Henry, 2003). Therefore, stock market liberalization signifies the beginning of a steady move toward greater freedom of capital inflows.

I find that opening equity markets is associated with a longer survival of all products. However, products that lie far from the country's comparative advantage have a relatively higher hazard rate after market equity liberalization. These results are obtained with country, year and product fixed effects, which account for systematic differences across countries and products and capture general time trends. I show that my results are not driven by cross sectoral differences between countries with open and closed markets by running separate regression on the sample of 39 economies which liberalized foreign portfolio flows during the sample period. Since capital account liberalizations can be part of broader reform programs, I show that the results are not driven by simultaneous changes in trade policy by including a trade liberalization dummy in the set of controls. The results remain unchanged when I control alternatively for trade openness.

The remainder of the chapter is organized as follows. The next section provides some intuition for the empirical findings. Section two presents the methodology and the data. Section 3 reports the estimation results and provides some evidence on a transmission channel. The last section concludes.

1.1 Financial Liberalization and Allocative Efficiency: A Transmission Mechanism.

Financial liberalization is strongly associated with an increase in the role of market and a reduction in the role of government in allocation of credit. Therefore, financial liberalization affects the incentives with which capital is allocated across sectors and firms. Free access to international capital markets increases competition in the domestic financial markets. The presence of foreign investors can improve equity market liquidity and price efficiency (Bekaert et al., 2009) which will result in more efficient allocation of funds at least for the listed companies. Financial liberalization may have a beneficial effect on the efficiency of domestic banking sector. Competition pushes banks to lend money to young and relatively riskier firms. Screening of customers becomes more important as the return to screening rises. Stricter bank lending forces underperforming firms to shut down, encouraging at the same time the entries of new firms. Banks, ceteris paribus, tend to focus on firms operating in comparative-advantage sectors because they are better risks.[2] As argued by Amity and Weinstein (2009), international trade is an activity particularly dependent on financing, among other things, due to the delays involved in the transactions. Thus, firms in comparative-disadvantage sectors finding it harder to finance their entry into or survival in export markets either exit or refrain from entering export markets. On aggregate, one should therefore expect to see less entry, more exit, and relatively shorter survival on export markets in those sectors after financial liberalization.

Financial liberalization may improve the quality of domestic legal institutions. Foreign investors might require better corporate governance and regulatory oversight. Improvement in contract enforcement and transparency foster further entries and competition in the banking sector, reinforcing the initial effect of financial liberalization on financial markets. Finally, financial liberalization limits a government's power to provide large subsidized loans to "favored" firms. Domestic financial institutions facing competition from international players become reluctant to extend credit to inefficient producers. Mobile capital forces the government to maintain macro-economic prudence, further reducing the government's ability to intervene in the domestic credit market. As a consequence, the politically linked firms, which enjoyed subsidized loans prior to liberalization, face higher borrowing costs and tighter competition afterwards. This, in turn, spurs further restructuring activities and reallocation of capital across and within sectors (Loriaux, 1997, Rajan and Zingales, 2003).[3]

2 Estimation

In this section I discuss the estimation strategy and briefly describe the data used for the analysis. My main hypothesis is that following liberalization episodes, products employing intensively scarce factors exit at a relatively higher rate from a country's export portfolio[4]. In other words, a country tends to rebalance its export portfolio towards products consistent with its comparative advantage. I test this hypothesis by estimating the Cox Proportional Hazard model recently applied in the empirical trade literature.[5] I verify my results looking

[2] Firms operating in comparative-advantage sectors may have lower production costs and better growth opportunities in international product markets.

[3] The historical study of Haber (1997) provides a useful illustration of the effect of financial liberalization on the dynamics and structure of the textile industry in Brazil and Mexico. Following its political revolution, Brazil liberalized its financial markets while the financial sector in Mexico remained completely oppressed. Starting relatively smaller and more concentrated, the textile industry in Brazil grew faster and became more competitive than the Mexican textile industry.

[4] The difference between exit rates of the products increases following financial liberalization.

[5] See Appendix A for details on the methodology.

at the probability of exits and entries using fixed effect logit regression.

2.1 Data description

I use export data from the UN Comtrade database. The data is reported at 4 or 5 digits of SITC product classification which comprises around 1160 different product categories for 233 countries over the period 1975-2003. I reconstruct the database keeping only the information about the starting and ending year of a trade relationship, dropping continuous years of exporting between these two dates.[6]

I construct several spell characteristics using original export data. I compute the total number of products supplied by the country, the total number of exporters of the product, the initial transaction value and the number of years of exporting before the current spell, which accounts for previous experience of the country in supplying the product to the World. These variables account for the country's export diversification, the product market size and the overall export performance of the country, respectively. According to the literature on trade survival, these variables increase the probability of survival of trade relationships.

Data on equity market liberalization comes from the database of Bekaert et al. (2005). The data on equity market liberalization covers 91 countries between 1980 and 2000. It includes 41 countries that liberalized their stock market during the period between 1980 and 2000, 16 countries that liberalized their stock market prior to 1980, and 34 countries that did not remove the stock market restriction during the period under consideration.[7] Bekaert et al. (2005) report both the official year of equity market liberalization and the intensity of equity market liberalization, which represents a proportion of the portfolio of domestic equities that are available to foreign investors. A ratio of one means that the whole domestic equity is available to foreign investors. I construct 3 proxies for equity market liberalization. First, I construct an official liberalization dummy equal to 1 in the year of official liberalization and afterwards ($Lib1$). Second, I construct a liberalization intensity dummy, which is set to the intensity level in the year of liberalization and afterwards ($Lib2$). Finally, I construct a third proxy for equity market liberalization using the specific structure of the data. It takes the value 0 if equity market liberalization happens after the end of spell, 1 if financial liberalization takes place during the life of the spell and 2 if financial liberalization occurs before the beginning of the spell. All proxies are equal to zero for the countries that have never liberalized their equity markets. They take the value 1 or 2 for the countries that liberalized their financial markets prior to 1980 ($Lib3$).

To check the robustness of my results, I employ two *de facto* measures of financial liberalization. I use the capital account openness constructed by Quinn and Toyoda (2008). The capital account openness varies from 0 to 4, with 4 indicating a fully open economy. The measure is available for 94 countries in the world over the period 1950-2004. In addition, I use the *de facto* measure of financial openness proposed by Lane and Millesi-Ferretti (2006), which is defined as the ratio of total foreign assets and liabilities over GDP. The authors estimate external assets and liabilities for 145 industrial and developing countries using the international-investment-position figures published by national central banks and governments.

The data on the product revealed factor intensity and the country's factor endowments are taken from the database of Cadot et al. (2009). The factor intensities for product k are calculated as the weighted average of the factor endowments of the countries exporting this

[6] To correct for left censoring observations and to account for recent exporting experience, which I define as length of the previous spells ended less than 5 years before beginning of the current spell (tot_y_exp), I drop all spells observed before1975, so my survival database started effectively in 1975

[7] See Appendix C for the country coverage.

product. The revealed capital intensity index of good k is calculated as:

$$\hat{\kappa}_k = \sum\nolimits_c \omega_{ck}\ \kappa_c$$

where κ_c is country c's capital/labor endowment, and the weights are given by, $\omega_{ck}=\frac{X_k^c/X^c}{\sum_c X_k^c/X^c}$. The revealed human-capital intensity of product k and revealed land intensity are calculated in a similar way.

The data on financial development is taken from Beck, Demirguc-Kunt, and Levine's (2009) database, which contains various indicators of financial development across countries and over time. The annual data for GDP per capita (GDPpc) is taken from the World Development Indicator report 2006, and is reported in constant 2000 US dollars. The data on trade liberalization episodes is taken from Wacziarg and Welch (2008), while the trade openness variable is taken from the Penn World Tables. The data for banking and currency crisis are taken from the systemic banking database of Laeven and Valencia (2008).The database covers all systemically important banking and currency crises for the period 1970 to 2007.[8]

2.2 Estimation strategy

According to my main hypothesis, financial liberalization should have a differentiated effect on survival of different product categories. Products relying intensively on scarce factors should disappear at a faster rate from a country's export portfolio. Therefore, the interaction term of the liberalization dummy and the product's distance to the comparative advantage set should be positive and significant in a Cox Proportional Hazard specification. I distinguish products using two metrics of distance. The first one is the Euclidian distance between the vector of the country's endowments and the vector of the product revealed factor intensity (Cadot et al., 2009). The second is a sum of absolute differences between the country's factor endowments and the product factor intensities.

$$distance_{ck} = \sqrt{std(h_c \square \hat{h}_k)^2 + std(k_c \square \hat{\kappa}_k)^2 + std(l_c \square \hat{l}_k)^2} \tag{1}$$

$$abs\_dis\tan ce_{ck} = std\left|h_c \square \hat{h}_k\right| + std\left|k_c \square \hat{\kappa}_k\right| + std\left|l_c \square \hat{l}_k\right| \tag{2}$$

where h_c , k_c, and l_c are the country's human-capital, capital and land endowments, and $\hat{h}_k$, $\hat{\kappa}_k$, $\hat{l}_k$ are the revealed factor intensities of product k. I standardized the absolute differences between the product factor intensities and the country's factor endowments to have zero mean and unit variance. I allow the shape of the baseline hazard function $h_0(t)$ to vary across products, by fitting a stratified Cox Proportional Hazard model with the SITC product code as a stratification variable. Stratification by the SITC adds more flexibility to the model and allows to estimate the effect of the X_{ck} on the hazard rate within-product[9]. Therefore, the main specification is given by:

$$h_j(t|X_{ck}) = h_{0k}(t)(\exp\beta.(Fin\_Lib_{ct_0} * distance_{ckt})\ + ...$$

[8] See Appendix D for the description of the variables used in estimation.

[9] Allowing baseline hazard to vary across products can be viewed as a more general way of accounting for time-invariant unobserved characteristics of the products that affect the probability of exit. See Appendix B for explanation.

$$
\begin{aligned}
& \text{.....+ } \gamma\ X_{ckt_0} + \delta_c + \mathrm{y}_{to} + \varepsilon_{ckt_0}) \qquad (3)\\
k \quad &= \quad 1, .., \ \mathrm{N}
\end{aligned}
$$

where Fin_Lib_c is an indicator variable for the official date of equity liberalization, first sign of liberalization or liberalization intensity. $dis\tan ce_{ck}$ is a distance to comparative advantage of product k in country c. δ_c is the country fixed effect. y_{to} is the time fixed effect, where the time dummy is taken at the beginning of the spell, ε_{ck} is an unobserved effect. All explanatory variables are measured at the beginning of the trade relationship, except the financial liberalization dummy which takes value 1 if financial liberalization occurs before the initiation of a spell or during the life of a spell.

The vector of X_{ck} is a vector of controls, which includes the value in logarithm of export in the first year of exporting, $log(initial\_export_{ck})$, reflecting the degree of confidence between partners at the initiation of the trade relationship. I account for the market size for product k, incorporating the number of countries exporting product k at the initial year of a trade relationship, $NSuppliers_k$. I control for the previous experience of the exporters including total years of exporting before current spell, $tot\_y\_exp_{ck}$[10]. Finally, I include a total number of spells before the current t $npell_{ck}$, to control for previous failures.

In addition, I control for the trade openness at the beginning of the spell using the respective variable from the Penn World Tables. I include GDPpc and its interaction term with the measure of distance to comparative advantage to check that my results are not driven by overall development of liberalized countries. I add several proxies for the banking sector and stock market development from the database of Levin et al. (2009) to control for the initial level of financial development in the liberalized countries. In all cases I allow for a differentiated effect of these variables across products by including their interactions with the distance measures.

To further check my results, I reestimate the baseline specification using two *de facto* measures of financial liberalization.

$$
h_k(t|X_{ck}) = h_{0k}(t)\exp(\beta.(Fin\_Open_{ct_0} * distance_{ckt}) + ..
$$

$$
\begin{aligned}
& \text{+... } \gamma\ X_{ckt_0} + \delta_c + \mathrm{y}_{to} + \varepsilon_{ckt_0}) \qquad (4)\\
k \quad &= \quad 1, .., \ \mathrm{N}
\end{aligned}
$$

where the variable the Fin_Open denotes either Quinn Toyoda's index of capital account openness or Lane and Milesi-Ferretti's financial openness measure.

Since financial liberalization varies across time and countries, I report robust clustered standard errors where clustering is done at country x time level. In addition, I follow Cameron et al. (2006), and compute two-way clustered standard errors along country and time dimension.[11]

[10] Recent exporting experience I define as a length of the previous spells ended less than 5 years before beginning of the current spell (tot_y_exp).

[11] This is done by estimating 3 one-way cluster robust "variance " matrices using standard Stata routine, for one way clustering along three dimensions: the exporting country, the time and their intersection (exporting country x time). The robust two-way clustered variance matrix is then obtained by adding the first two variance matrices and subtracting the third. The results obtained using this procedure are similar to those obtained using one-way clusterring. The result for the baseline estimation for the CPH model with two way clusterred standard errors is presented in Appenidix H.

I control for simultaneous banking and currency crisis by including respective dummies in the baseline specification. The dates for banking are taken from the paper of Laeven and Valencia (2008). Also, I control for simultaneous trade reform including a trade liberalization dummy into the set of controls. I define the trade liberalization dummy in a similar manner as the equity liberalization dummy. It takes the value 1 for all spells ended after the trade liberalization date defined by Wacziarg and Welch (2008).

In addition, I estimate the fixed effect logit regression model.

$$\Pr(exit) = \beta.Fin\_Lib_{ct} * distance_{ckt} + \gamma X_{ckt} + \delta_{kc} + y_t + \varepsilon_{ckt} \tag{5}$$

$$\Pr(entry) = \beta.Fin\_Lib_{ct} * distance_{ckt} + \gamma X_{ckt} + \delta_{kc} + y_t + \varepsilon_{ckt} \tag{6}$$

The logit regression provides a robustness check for the results obtained using the cox regression as well as an additional test of the hypothesis. In particular, I test that financial liberalization is associated with a relatively smaller number of entries in the comparative-disadvantage sectors. Also, I trace the dynamic effect of financial liberalization on probability of exits and entries introducing post liberalization dummies into the set of regressors. The postliberalization dummies are set to be equal to 1 after 5 or 10 years of financial liberalization. If the effect of financial liberalization diminishes with time, the coefficients of the postliberalization dummies must have opposite sign and be statistically significant, since the long run effect of financial liberalization is obtained by summing up the coefficients of liberalization and postliberalization dummies.

Finally, I introduce the measure of overall efficiency of the country's export portfolio by calculating the weighted sum of the distances of individual product categories. For each country c and year t, I calculate the average distance of the country's export to the country's comparative advantage set:

$$Distance\_Export_{ct} = \sum_{k=1}^{K} (distance_{ckt} \times \ Expt_{ckt}/Expt_{ct}) \tag{7}$$

where $Expt_{ckt}/Expt_{ct}$ is the share of product k in total export in year t and $distance_{ck}$ is the distance measure defined as in (1). A large value of this variable reflects higher inefficiency of the country's export pattern, the larger share of the country's export contains the products incompatible with the country's factor endowments.[12]

I regress the average distance of the country's export on the liberalization dummy and other country characteristics which allows me to identify the impact of financial liberalization on the overall efficiency of the country's export portfolio.

$$Distance\_Export_{ct} = \beta.Fin\_Lib_{ct} + \gamma X_{ct} + \delta_c + \mathrm{y}_t + \varepsilon_{ct} \tag{8}$$

[12] There may be an endogeneity problem arising from having product export share in the individual distances and in the weights used to compute this measure. To mitigate it, I recompute product factor intensities for each country excluding the country in question from the sample of countries that is used to compute product factor intensities. I obtain qualitatively similar results. Results are presented in Appendix G.

3 Estimation results

3.1 Baseline Specification

Table 1 presents the results for the baseline specification using the euclidean distance to the comparative advantage ($distance_{ckt}$) measure and various proxies for equity market liberalization. The first three columns report the results obtained on the full sample of the countries, including countries that have never liberalized the stock market, countries that liberalized the stock markets during the period 1980-2000 and countries that liberalized the stock market prior to 1980.[13] The last three columns report the results obtained on the restricted sample of the countries that liberalized the stock market during the period 1980-2000. The first and forth columns display the results using the official equity liberalization dummy ($Lib1_{ct}$). $Lib1_{ct}$ takes a value 0 if equity market liberalization happens before the end of spell and 1 if equity market liberalization happens during the life of the spell or before the beginning of the spell. The second and fifth columns present the results for equity liberalization intensity ($Lib2_{ct}$) whose values indicate the share domestic equity available for foreign investors, taking value 1 if foreign investors do not have any restriction in buying domestic securities. The results for the last proxy of equity liberalization ($Lib3$) are reported in columns three and six. The last proxy of equity market liberalization takes value 0, 1, or 2 depending on whether equity market liberalization happens after the end, during or before the start of the spell.

The results seem to be robust to different definitions of equity liberalization. The equity market liberalization variables have negative and statistically significant coefficients indicating increase in the overall duration of the spells following equity liberalization. The interaction terms of the equity market liberalization variables and the distance measure have positive and significant coefficients, implying that financial liberalization increases the likelihood of exits for the products inconsistent with a country's factor endowments. Distance to comparative advantage has a positive and statistically significant impact on the hazard function, meaning that the products using intensively scarce resources have a relatively lower survival rate[14].

The classical determinants of the trade survival have the expected sign and are almost always statistically significant. The initial product export and number of suppliers, which capture the size and the structure of the product market, increase the duration of the spell or, equivalently, decrease the hazard rate. Previous exporting experience (tot_y_exp) has a negative and significant impact on the hazard rate. The number of previous spells ($nspell_{ckt}$) impacts positively the hazard rate, implying that the previous exits make subsequent exits more likely.

The results remain qualitatively unchanged on the restricted sample of countries liberalized during the period 1980-2000 (columns 4 to 6).The coefficients of liberalization variables are negative and significant at 1% suggesting that following financial liberalization the survival of trade relationships increases. These results are in line with the empirical analysis of Manova (2008) who documents an increase in the export volume following equity mar-

[13] In fact, I use the date of stock market liberalization as a proxy for capital account liberalization. According to Henry (2003), stock market liberalization signifies the beginning of a steady move toward greater freedom of capital inflows.

[14] The coefficient of financial liberalization dummy for the liberalized countries sample is around 1.5, the coefficient of the interaction term is around 0.14. The Euclidian distance measure varies from [0.018; 7.6]. The term (-1.5Lib+0.14*Lib*distance) is always negative for the range of the distance in my sample. Nevertheless, the difference between hazard rates increases following financial liberalization. That is for two products with the distance to CA 0.018 and 7.6, the relative hazard rate will increase by 300% .

Haz_rate(7.6)/Haz_rate(0.018)=EXP(0.14*(7.6-0.018))=2.89

ket liberalization. An increase in the supply of finance in the economy allows producers to enter into new trade relationships, to survive longer and to expand existing ones. A better performance in the intensive and the extensive margins translates into higher export growth following financial liberalization.

The distance to comparative advantage measure and its interaction term with the liberalization dummies have positive and significant effects on the hazard rate of the trade relationships. Thus, the products incompatible with a country's factor endowments disappear at a faster rate from its export portfolio and even more so following financial liberalization. This result suggests that financial liberalization has a differentiated effect across products, pushing out products incompatible with a country's resource endowments. The other explanatory variables have the expected sign and are statistically significant in the reduced sample. Comparing the results obtained in the reduced sample with those obtained in the full sample, I can conclude that my results are not driven by differences between financially open and closed countries.

Additionally, I reestimate the baseline specification using various de facto measures of financial liberalization, an alternative measure of distance ($abs\_distance_{ckt}$) and different strata variables. The results are qualitatively similar to those obtained in the baseline specification.[15] I also experiment with the two-way clustering using the procedure outlined in Cameron et al. (2006). The significance of main variables of interests remains after accounting for two-way clustering. The results of this exercise is presented in Appendix H.

[15] See Appendix F for the results of the baseline estimation with alternative proxies for financial liberalization and the distance to comparative advantage measure.

Table 1: Baseline, Different Proxies for Liberalization

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972), with SITC product code defining a stratification variable, controlling for country and time fixed effects. Robust standard errors clustered at (exporting country)*time level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$Lib1_c$	-0.918***			-1.537***		
	(0.037)			(0.050)		
$distance_{ck}$ x $Lib1_c$	0.111***			0.149***		
	(0.016)			(0.020)		
$distance_{ck}$	0.098***	0.096***	0.098***	0.0226*	0.044***	0.036**
	(0.007)	(0.007)	(0.007)	(0.013)	(0.012)	(0.014)
$initial\_export_{ck}$	-0.062***	-0.064***	-0.063***	-0.059***	-0.064***	-0.061***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
$NSuppliers_{ck}$	-0.006***	-0.006***	-0.006***	-0.004***	-0.009***	-0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$tot\_y\_exp_{ck}$	-0.159***	-0.167***	-0.166***	-0.152***	-0.175***	-0.165***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
$product\_export_k$	-0.043***	-0.052***	-0.046***	-0.046***	-0.044***	-0.057***
	(0.005)	(0.005)	(0.005)	(0.009)	(0.009)	(0.009)
$nspell_{ck}$	0.265***	0.279***	0.280***	0.252***	0.313***	0.290***
	(0.004)	(0.004)	(0.004)	(0.006)	(0.006)	(0.006)
$Lib2_c$		-1.789***			-2.470***	
		(0.084)			(0.136)	
$distance_{ck}$ x $Lib2_c$		0.176***			0.543***	
		(0.020)			(0.050)	
$Lib3_c$			-0.393***			-0.809***
			(0.025)			(0.043)
$distance_{ck}$ x $Lib3_c$			0.060***			0.086***
			(0.010)			(0.015)
Sample	All	All	All	Lib	Lib	Lib
Observations	187619	187619	187619	88758	88758	88758

Table 2 presents the results of the baseline specification with additional controls. The first five columns present the results for the full sample of countries, while the last five report the results obtained on the restricted sample of the countries that liberalized their financial markets over the period 1980-2001.

Empirical studies on trade survival document a positive effect of country economic and financial development on trade survival. Additionally, there is a concern that the liberalization dummy may partially account for the effect of overall economic and financial development. In this case, the interaction term ($Lib1_c * distance_{ck}$) might represent the impact of some unobservable feature of rich or financially developed countries that prevents them from wasteful resource allocation. Therefore, I include in the set of additional controls the proxies for country economic development ($GDPpc$), country financial development (ratio of private credit to GDP, the ratio stock market capitalization) and their interaction terms with the distance measure.

Columns (1) and (6) present the results controlling for country economic development (GDPpc) and its interaction term with the distance measure; columns (2) and (7) present the results accounting for country banking development (ratio of private credit to GDP) and its interaction term with the distance measure; columns (3) and (8) display the results including country stock market development and its interaction term with the distance measure in the set of controls.

The coefficients of the main variables of interest keep the expected sign and remain statistically significant. Financial liberalization is negative and significant suggesting an increase in the duration of a country's export after opening financial markets. The sign and significance of the interaction terms of financial liberalization and the distance measure imply that products incompatible with a country's factor endowments have a relatively higher hazard rate following financial liberalization. The coefficient of the distance measure confirms that products incompatible with a country's factor endowments have a shorter survival. All traditional controls maintain the expected sign and significance level in all specifications.

The coefficient of GDPpc is positive and significant in all regressions except those which include stock market development in the set of controls. Notice that these results are obtained including country fixed effects. The positive estimated coefficient for GDPpc may imply that the trade relationships initiated at the peak of a business cycle have a higher probability to fail (see Jaud et al., 2010).

The interaction term of GDPpc and the distance measure is negative and significant in the full sample of countries (column 1) while positive and statistically significant in the reduced sample (column 6).The positive sign of the interaction term of GDPpc and the distance measure obtained in the full sample of countries implies that products incompatible with a country factor endowments survive longer in the export portfolio of a high income country. This counterintuitive result may be due to the presence of outliers in the full sample. In the reduced sample of countries, the sign of the coefficient of the interaction term of GDPpc and the distance measure suggests that products inconsistent with the factor endowments survive less in the exporting portfolio of developed countries.

The coefficients of the interaction term of the country's private credit to GDP with the product distance are positive and significant in both samples (column 2 and 7) confirming the finding of Jaud et al.(2010) who document that a well functioning bank sector promotes the exporting pattern consistent with a country's comparative advantage. The coefficient of bank sector development is positive and insignificant in the full sample of countries while negative and 10% statistically significant in the reduced sample of countries. The result for the reduced sample is more intuitive as it suggests that countries with a better functioning banking sector have higher duration of exports.

The coefficient of the interaction of stock market development and the distance measure

is positive but fails to be significant for both samples (columns 3 and 8). This result is in line with the results of Jaud et al. (2010) who also do not find the robust results for the stock market development. The coefficient of stock market development alone is positive in both samples but statistically significant only in the full sample of countries.

Exposure to international competition has a positive impact on export performance of countries in the long run. Increasing returns to scale in production can reinforce the advantage of operating at higher output levels due to exporting and can lead to further cumulative gains in export market share. Importing intermediate and capital goods decreases the cost of domestic production and gives access to superior technology. More importantly, exposure to international competition could promote a more efficient exporting pattern, eliminating the inefficient products or producers from a country's export portfolio. Therefore, I include the ratio of total export and import over GDP ($Openc_c$) and its interaction term with the distance measure in the baseline specification (columns 4 and 9).

As before the main variables of interest as well as traditional controls remain robust to inclusion trade openness and its interaction term in the regression. Trade openness and its interaction term are significant only in the reduced sample. The sign of the coefficient of the interaction term of trade openness with the distance suggests that the exposure to international competition eliminates the product inconsistent with a country's resource endowments. The coefficient of trade openness confirms that more trading increases the duration of a country exports.

Finally, empirical literature shows a beneficial effect of the equity market liberalization on the industries depending on external finance (Manova, 2008; Gupta et al., 2008). To ensure that the main interaction term does not capture the effect of financial liberalization on financially dependent industries, I include the interaction term between the external finance dependence measure of Rajan and Zingales[16] and the financial liberalization dummy ($ExF_j * Lib1_c$) in the set of regressors (columns 5 and 10).

The coefficients of the main variables of interest, as well as the traditional spell characteristics, are similar to those obtained in the baseline regression. Financial liberalization increases the overall survival of a country's export but decreases the survival of the products inconsistent with a country's factor endowments. The products incompatible with a country's factor endowments have a higher hazard rate. Consistent with the intuition underlined above, the interaction term of the external finance dependence with the liberalization dummy is negative and significant implying that financial liberalization increases the average duration of the products of those industries.

[16] This measure is reported for the isic3 digit industry classification. I concorde it to the SITC product classification.

Table 2: Baseline, More Controls, All countries

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972), with SITC product code defining a stratification variable, controlling for country and time fixed effects.Robust standard errors clustered at (exporting country)*time level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)
$Lib1_c$	-0.967***	-0.943***	-1.324***	-0.948***	-0.994***
	(0.042)	(0.042)	(0.051)	(0.039)	(0.036)
$distance_{ck}$x $Lib1_c$	0.125***	0.097***	0.077***	0.112***	0.128***
	(0.019)	(0.017)	(0.018)	(0.017)	(0.018)
$distance_{ck}$	0.261***	0.070***	0.049***	0.089***	0.086***
	(0.055)	(0.010)	(0.014)	(0.011)	(0.007)
$initial\_export_{ck}$	-0.062***	-0.063***	-0.065***	-0.062***	-0.065***
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
$NSuppliers_{ck}$	-0.006***	-0.006***	-0.007***	-0.006***	-0.009***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
$tot\_y\_exp_{ck}$	-0.163***	-0.165***	-0.163***	-0.163***	-0.062***
	(0.003)	(0.003)	(0.004)	(0.003)	(0.002)
$product\_export_k$	-0.037***	-0.0350***	-0.054***	-0.037***	
	(0.005)	(0.005)	(0.008)	(0.005)	
$nspell_{ck}$	0.269***	0.274***	0.285***	0.269***	
	(0.004)	(0.004)	(0.007)	(0.004)	
GDPpc	0.357***	0.327***	-0.184**	0.327***	0.333***
	(0.045)	(0.048)	(0.083)	(0.042)	(0.042)
$distance_{ck}$xGDPpc	-0.0202***				
	(0.007)				
$distance_{ck}$x BkD_c		0.048***			
		(0.015)			
BkD_c		0.0751			
		(0.075)			
$distance_{ck}$ x StM_c			-0.020		
			(0.019)		
StM_c			0.170**		
			(0.083)		
$distance_{ck}$ x $Openc_c$				0.000	
				(0.000)	
$Openc_c$				-0.001	
				(0.000)	
ExtFinDep x Lib1					-0.178***
					(0.027)
ExtFinDep					-0.032
					(0.194)
Sample	All	All	All	All	All
Observations	179265	162389	81258	179265	169324

Table 2: Baseline, More Controls, Liberalized

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972), with SITC product code defining a stratification variable, controlling for country and time fixed effects.Robust standard errors clustered at (exporting country)*time level are in parentheses. *, **, and *** denote statistical significance at

VARIABLES	(6)	(7)	(8)	(9)	(10)
$Lib1_c$	-1.532***	-1.504***	-1.392***	-1.536***	-1.702***
	(0.051)	(0.054)	(0.054)	(0.051)	(0.049)
$distance_{ck}$x $Lib1_c$	0.141***	0.147***	0.083***	0.144***	0.138***
	(0.021)	(0.022)	(0.021)	(0.020)	(0.019)
$distance_{ck}$	-0.241***	-0.033*	0.028*	-0.007	0.027**
	(0.089)	(0.018)	(0.016)	(0.017)	(0.012)
$initial\_export_{ck}$	-0.059***	-0.060***	-0.062***	-0.059***	-0.063***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$NSuppliers_{ck}$	-0.004***	-0.005***	-0.006***	-0.004***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
$tot\_y\_exp_{ck}$	-0.153***	-0.155***	-0.167***	-0.153***	-0.056***
	(0.004)	(0.004)	(0.005)	(0.004)	(0.002)
$product\_export_k$	-0.044***	-0.041***	-0.047***	-0.043***	-0.032***
	(0.009)	(0.009)	(0.010)	(0.009)	(0.009)
$nspell_{kk}$	0.251***	0.256***	0.284***	0.252***	0.092***
	(0.007)	(0.007)	(0.008)	(0.007)	(0.003)
GDPpc	0.153*	0.306***	-0.196**	0.206***	0.015
	(0.080)	(0.087)	(0.085)	(0.079)	(0.052)
$distance_{ck}$xGDPpc	0.0312***				
	(0.011)				
$distance_{ck}$x BkD_c		0.071***			
		(0.024)			
BkD_c		-0.202*			
		(0.111)			
$distance_{ck}$ x StM_c			0.018		
			(0.021)		
StM_c			0.095		
			(0.088)		
$distance_{ck}$ x $Openc_c$				0.000**	
				(0.000)	
$Openc_c$				-0.002*	
				(0.001)	
ExtFinDep x Lib1					-0.163***
					(0.031)
ExtFinDep					-0.166
					(0.274)
Sample	Lib	Lib	Lib	Lib	Lib
Observations	88758	80247	68421	88758	73758

3.2 Robustness Checks

Financial liberalization may coincide with trade reforms or may cause banking and currency crisis. I control for a simultaneous trade reform, including a trade liberalization dummy and its interaction with the distance measures in the main specification. To disentangle the effect of financial liberalization from the effect of banking or currency crisis, I introduce banking and currency crisis dummies and their interactions in the baseline specification. I assume that a typical banking or currency crisis lasts one year. Therefore, the crisis dummy equals to one only in the year of the occurrence of the crisis.[17] The results are presented in Table 3. Columns (1) and (4) present the results for the regressions with trade liberalization dummy, columns (2) and (5) report the results for banking crisis and, columns (3) and (6) show results with the currency crisis dummy.

The coefficients of equity market liberalization and its interaction with distance have the expected sign and are statistically significant in all columns. As before, traditional controls maintain their expected sign and are highly statistically significant. The coefficients of the trade liberalization dummy are negative and significant, implying that following trade liberalization the overall survival of products increases. The coefficient of the interaction term of trade liberalization with the distance measure varies across sub samples. In the full sample of the countries it is positive and significant at 1% implying that trade liberalization decreases survival of the products incompatible with the resource endowments.[18] In the sample of countries that liberalized their capital account over the period 1980-2001, the coefficient of the interaction term is negative and significant at 10%, implying that trade liberalization increases the duration of products incompatible with the resource endowments of the countries.

The coefficient of the banking crisis dummy is positive implying that a banking crisis decreases the duration of a country's exports. These results are consistent with the recent empirical evidence on banking crises and trade (Iacovone et al. 2009, Beverelli et al. 2010). The interaction term of the distance measure with the banking crisis dummy is negative implying that a banking crisis does not clean out the sectors incompatible with a country's factor endowments. Both the banking crisis dummy and its interaction term are statistically significant only in the full sample of countries.

Currency crisis does not have a robust effect across different samples. It is negative and significant in the restricted sample of countries, implying that a devaluation of the domestic currency increases the survival of a country's exports. It is positive but insignificant in the full sample of countries. The effect of the interaction term of the distance measure and the currency crisis dummy also varies across the samples. It is negative and significant in the full sample and positive, but not significant in the restricted sample. The result obtained using the full sample of countries implies that a currency crisis increases the survival of the economy's inefficient sectors. This may capture a procompetitive effect of the devaluation of domestic currency on exports.

My results may be driven by the presence of long spells in my sample. I address this issue by reestimating the baseline model in two different sub samples of the countries that

[17] I use Stata command stsplit to split the original trade spells into 3 parts before the crisis, during the time of crisis and after the crisis. This procedure is commonly used in survival analysis when there is a need to introduce time varying covariates in estimations. Results remain qualitatively the same if I assume that the crisis lasts two years instead of one.

[18] This result is in line with the theoretical model of Bernard et al.(2007). They show that following trade liberalization, the comparative disadvantage industries experience a net firms destruction while comparative advantage industries experience a net firms creation. This translates into an increase in the survival of products in comparative advantage industries and a decrease in the survival of products in comparative disadvantage industries.

liberalize their equity market during 1980-2001. The first one restricts the spells to those initiated in the 10 years interval of financial liberalization. The second contains only the spells that ended before or started after financial liberalization. The results of this exercise are presented in Table 4.

The financial liberalization dummy and the interaction term of financial liberalization dummy with the distance maintain positive and statistically significant coefficients in both sub samples, indicating that my results are not driven by the prevalence of long spells. The distance measure remains positive in both subsamples but fails to be significant in the second subsample. The classical determinants of trade survival (e.g. Nsuppliers, initial_export, tot_y_exp, nspell) keep the expected signs and significance level.

Table 3: Banking and Currency Crisis, Trade Liberalization

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972) with SITC product code defining a stratification variable, controlling for country and time fixed effects. The baseline specification is defined in Table 1. Robust standard errors clustered at (exporting country)*time level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$Lib1_c$	-0.805***	-0.924***	-0.908***	-1.479***	-1.541***	-1.531***
	(0.041)	(0.037)	(0.037)	(0.051)	(0.050)	(0.050)
$distance_{ck}$ x $Lib1_c$	0.086***	0.115***	0.104***	0.149***	0.151***	0.141***
	(0.018)	(0.016)	(0.016)	(0.022)	(0.020)	(0.020)
$distance_{ck}$	0.083***	0.098***	0.111***	0.026*	0.023*	0.025
	(0.008)	(0.007)	(0.008)	(0.016)	(0.013)	(0.016)
$initial\_export_{ck}$	-0.062***	-0.062***	-0.062***	-0.058***	-0.059***	-0.0586***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
$NSuppliers_{ck}$	-0.006***	-0.006***	-0.006***	-0.004***	-0.004***	-0.004***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
$tot\_y\_exp_{ck}$	-0.156***	-0.159***	-0.159***	-0.152***	-0.152***	-0.153***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
$product\_export_k$	-0.038***	-0.044***	-0.043***	-0.043***	-0.045***	-0.047***
	(0.005)	(0.005)	(0.005)	(0.009)	(0.009)	(0.008)
$nspell_{ck}$	0.254***	0.265***	0.265***	0.245***	0.252***	0.252***
	(0.004)	(0.004)	(0.004)	(0.007)	(0.007)	(0.007)
TL_c	-0.550***			-0.398***		
	(0.032)			(0.046)		
$distance_{ck}$ x TL_c	0.027**			-0.043*		
	(0.013)			(0.022)		
BC_c		0.262***			0.075	
		(0.069)			(0.076)	
$distance_{ck}$x BC_c		-0.132***			-0.095	
		(0.051)			(0.061)	
CC_c			0.043			-0.104**
			(0.031)			(0.047)
$distance_{ck}$x CC_c			-0.035***			0.007
			(0.013)			(0.02)
Sample	Full	Full	Full	Lib	Lib	Lib
Observations	187619	187619	187619	88758	88758	88758

Table 4: Different subsamples

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972) with SITC product code defining a stratification variable, controlling for country and time fixed effects. The baseline specification is defined in Table 1. Robust standard errors clustered at (exporting country)*time level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively

VARIABLES	(1)	(2)
$Lib1_c$	-1.015***	-1.511***
	(0.052)	(0.052)
$distance_{ck}$ x$Lib1_c$	0.096***	0.154***
	(0.018)	(0.020)
$distance_{ck}$	0.036***	0.010
	(0.011)	(0.014)
$initial\_export_{ck}$	-0.054***	-0.059***
	(0.002)	(0.003)
$NSuppliers_{ck}$	-0.006***	-0.004***
	(0.001)	(0.001)
$tot\_y\_exp_{ck}$	-0.133***	-0.165***
	(0.004)	(0.004)
$product\_export_k$	-0.035***	-0.039***
	(0.008)	(0.010)
$nspell_{ck}$	0.195***	0.276***
	(0.006)	(0.007)
Sample	Lib	Lib
Observations	79179	75103

3.3 Entry and Exit Behaviour

In this section I estimate the effect of financial liberalization on the probability to exit from and to entry into the exporting activity (see equation 5, 6). Whenever possible, I keep the same set of explanatory variables as in the Cox regression. In order to save the space I report the results for the reduced sample only.[19]

Table 5 presents the results for the regression where the dependent variable is a probability of exit from the exporting activity. Column (1) reports the result including GDPpc and its interaction term with the distance measure to the set of explanatory variables. Column (2) reports the result controlling for banking sector development and its interaction term with the distance measure. Column (3) accounts for stock market development and allows stock market development to have differentiated effect across product categories. Finally column (4) reports the results accounting for initial trade openness.

The results for the logit regression for the probability of exit is consistent with the results obtained previously (see Table 2). The liberalization dummy enters the regression negatively

[19] The results for the full sample are qualitatively similar and available upon request.

and significantly, implying that financial liberalization decreases the probability of exit of the country's export. The interaction term of the financial liberalization dummy and the distance measure is positive and significant supporting the main hypothesis. Distance to comparative advantage is most of the time positive and highly significant, meaning that products inconsistent with a country's factor endowments have a higher propensity to exit from a country's export portfolio. All traditional controls have the expected signs and are highly significant ($NSuppliers_{\mathrm{ck}}, tot\_y\_exp_{\mathrm{ck}}, product\_export_{\mathrm{k}}$). Interestingly, the coefficient of GDPpc is negative and significant at 1% which is in contrast with the results of the Cox regressions but which is more intuitive. The interaction term of the ratio of the country's GDPpc with the distance measure is positive and significant as before implying a higher probability of exit of the comparative disadvantage products from the export portfolio of developed countries (column 1).

The coefficients of bank development is positive but not significant, which may be due to the presence of GDPpc in the regression. The interaction term of the ratio of private credit to GDP with the distance measure confirms the results obtained using the Cox regression.

The coefficients of stock market and bank development are not significant, which may be due to the presence of GDPpc in the regression. Its interaction term of stock market capitalization with the distance measure while positive fails to enters significantly in the regressions (column 3)

Trade openness is negative and significant implying that trade relationships emanated from a country that is more opened to trade survive longer. The sign of the interaction term of trade openness with the distance measure suggests that more trading helps to eliminate products incompatible with a country factor endowments.

Table 6 reports the results associated with the probability of entry to the exporting activity. As in Table 5, column (1) reports results controlling for an exporting country's economic development and its interaction term with the distance. Column (2) and (3) report the results when bank and stock market development, and their interactions with the distance measure are included in the set of controls. The last column reports the result controlling for a country's trade openness.

The financial liberalization dummy is always positive and significant reflecting an increase in entries following financial liberalization. The interaction term of the financial liberalization dummy and the distance measure is negative and significant at 5% in all specifications, meaning that products inconsistent with a country's comparative advantage have lower chances to be exported after financial liberalization. The coefficients of trade openness, GDPpc, bank and stock market development are positive and statistically significant. In other words, higher level of economic development, better functioning financial markets and trade openness are associated with a higher number of entries in the exporting activity.

The interaction terms of these variable with distance measure are negative and statistically significant. Therefore, better functioning financial markets and institutions, trade openness not only pushes out inefficient exporters but also prevents from them starting to export.

Table 7 reports the results including postliberalization dummies and their interaction with the distance measure in the vector of explanatory variables. I set the postliberalization dummies equal to one after five or ten years of financial liberalization, and zero otherwise. These additional dummies allow to distinguish between short- and long-run effects of financial liberalization on the probability of exit. The long-run effect of financial liberalization is estimated by summing the coefficients of post liberalization and liberalization dummies. If the effect of financial liberalization is temporary, the coefficients of the postliberalization and liberalization dummies should have the opposite sign and be both significant to cancel the effect of each other. Columns (1)-(3) report the results for the logit regression when the dependent variable is the probability of exit, while columns (4)-(6) display the results for the

regression when the dependent variable is a probability of entry.

The results of the logit regression for the probability of exit are in line with the results previously reported. The liberalization dummy is negative and significant implying that financial liberalization decreases the probability of exiting from the exporting activity. Distance to comparative advantage is positive and highly significant implying that products inconsistent with a country's factor endowments have a higher propensity to exit from a country's export portfolio.

Both the postliberalization and the liberalization dummies are negative, however only the liberalization dummy is significant, suggesting that the effect of financial liberalization on the probability of exit is permanent. The interaction terms of the postliberalization dummies with the distance measure are positive but insignificant, while the main interaction term remains significant and positive. These results suggest that the effect of financial liberalization on the probability of exit holds after five or ten years of financial liberalization.

The results of the regressions for the probability of entry (columns 4-6) reinforce the results previously obtained. The interaction term of the financial liberalization dummy and the distance measure remain negative and significant after the inclusion of the postliberalization dummies and their interactions with the distance in the regression. The postliberalization dummies and their interaction terms are not statistically significant implying that the effect of financial liberalization remains significant after 5 and 10 years.

Table 5: Fixed Effect Logit Regression 1971-2003, More Controls, Pr(exit)

The dependent variable is the probability of ending of an export relationship of product k from country c. All regressions are estimated using the fixed effect logit regression controlling for time fixed effects. Robust bootstrapped standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)
$Lib1_c$	-0.300***	-0.195***	-0.183***	-0.291***
	(0.0275)	(0.029)	(0.035)	(0.027)
$distance_{ck}$ x $Lib1_c$	0.135***	0.082***	0.038*	0.124***
	(0.0155)	(0.018)	(0.022)	(0.015)
$distance_{ck}$	-0.0953	0.190***	0.221***	0.150***
	(0.142)	(0.022)	(0.023)	(0.027)
$NSuppliers_{ck}$	-0.0473***	-0.048***	-0.054***	-0.048***
	(0.000607)	(0.001)	(0.001)	(0.001)
$tot\_y\_exp_{ck}$	-0.0283***	-0.029***	-0.034***	-0.029***
	(0.00199)	(0.002)	(0.002)	(0.002)
$product\_export_k$	-0.0907***	-0.081***	-0.095***	-0.089***
	(0.00942)	(0.010)	(0.012)	(0.009)
GDPpc	-0.580***	-0.562***	-0.882***	-0.396***
	(0.0382)	(0.036)	(0.042)	(0.031)
$distance_{ck}$ x GDPpc	0.0392**			
	(0.0167)			
$distance_{ck}$ x BkD_c		0.169***		
		(0.039)		
BkD_c		0.013		
		(0.063)		
$distance_{ck}$ x StM_c			0.001	
			(0.044)	
StM_c			-0.093	
			(0.058)	
$distance_{ck}$ x Openc				0.002***
				(0.000)
$Openc_c$				-0.009***
				(0.001)
Sample	Lib	Lib	Lib	Lib
Observations	499985	431391	332590	499985
Number of index	28982	26877	23759	28982

Table 6: Fixed Effect Logit Regression 1971-2003
More Controls, Pr(entry)

The dependent variable is the probability of starting of a new export relationship for product k from country c. All regressions are estimated using the fixed effect logit regression controlling for time fixed effects. Robust bootstrapped standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)
$Lib1_c$	0.325***	0.239***	0.225***	0.293***
	(0.0268)	(0.0292)	(0.0336)	(0.0263)
$distance_{ck}$x$Lib1_c$	-0.168***	-0.109***	-0.0440**	-0.145***
	(0.0142)	(0.0163)	(0.0211)	(0.0137)
$distance_{ck}$	0.520***	0.0138	-0.0987***	0.104***
	(0.156)	(0.0210)	(0.0226)	(0.0269)
$NSuppliers_{ck}$	0.0383***	0.0387***	0.0428***	0.0386***
	(0.000606)	(0.000656)	(0.000816)	(0.000606)
$tot\_y\_exp_{ck}$	0.0390***	0.0490***	0.0828***	0.0393***
	(0.00238)	(0.00265)	(0.00369)	(0.00238)
$product\_export_k$	0.112***	0.0959***	0.0980***	0.111***
	(0.00806)	(0.00873)	(0.0107)	(0.00806)
GDPpc	0.333***	0.173***	0.418***	0.167***
	(0.0409)	(0.0357)	(0.0424)	(0.0305)
$distance_{ck}$x GDPpc	-0.0755***			
	(0.0182)			
$distance_{ck}$x BkD_c		-0.322***		
		(0.0397)		
BkD_c		0.368***		
		(0.0799)		
$distance_{ck}$x StM_c			-0.0647	
			(0.0415)	
StM_c			0.160**	
			(0.0720)	
$distance_{ck}$x $Openc_c$				-0.00392***
				(0.000351)
$Openc_c$				0.00984***
				(0.000584)
Sample	Lib	Lib	Lib	Lib
Observations	484655	414080	284687	484655
Number of index	29453	27474	24691	29453

Table 7: Fixed Effect Logit Regression,1971-2003

The dependent variable is the probability of ending of (columns 1 & 2)or entering into (columns 3 &4) an export relationship of product k from country c. All regressions are estimated using the fixed effect logit regression controlling for time fixed effects. Robust bootstrapped standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Pr(exit)	Pr(exit)	Pr(entry)	Pr(entry)
VARIABLES	(1)	(2)	(3)	(4)
$Lib1_c$	-0.211***	-0.231***	0.371***	0.355***
	(0.029)	(0.027)	(0.028)	(0.025)
$distance_{ck}$ x$Lib1_c$	0.029**	0.027***	-0.115***	-0.109***
	(0.012)	(0.010)	(0.010)	(0.010)
postLib5	-0.011		-0.022	
	(0.033)		(0.033)	
$distance_{ck}$ xLib5	0.009		0.012	
	(0.014)		(0.012)	
$distance_{ck}$	0.181***	0.179***	-0.078***	-0.078***
	(0.009)	(0.009)	(0.010)	(0.010)
$NSuppliers_{ck}$	-0.044***	-0.044***	0.038***	0.038***
	(0.001)	(0.001)	(0.001)	(0.001)
$tot\_y\_exp_{ck}$	-0.151***	-0.149***	0.015***	0.015**
	(0.002)	(0.002)	(0.002)	(0.002)
$product\_export_k$	-0.089***	-0.088***	0.117***	0.117***
	(0.009)	(0.009)	(0.007)	(0.007)
postLib10		-0.286***		-0.015
		(0.042)		(0.045)
$distance_{ck}$ xLib10		0.047***		0.001
		(0.017)		(0.015)
Observations	602408	602408	598068	598068
Sample	Lib	Lib	Lib	Lib
Number of index	31122	31122	32113	32113

3.4 An Aggregate Proxy for Allocative Efficiency

Another way to visualize the effect of financial liberalization on a country's export pattern is to consider what happens with the overall distance of the country's exports to the country's comparative advantage set around the liberalization episode. I run the fixed effect regression of the average distance of the country's exports on three liberalization dummies controlling for the exporting country's level of economic development (GDPpc), its quality of financial system (private credit to GDP), trade openness and year effects.

The results are reported in Table 8. The liberalization dummy is negative but significant only when I include a postliberalization dummy (PostLib10) in the set of controls. The postliberalization dummies are negative and significant suggesting that the effect of financial liberalization can be visualized only with time. Trade openness is negative and significant in all cases implying that international competition in the product market helps countries to rebalance their export portfolio in line with their factors endowment. Private credit of the banks to GDP, although negative, fails to be significant in all regressions. GDPpc is positive but insignificant in all specification.

Overall, the results confirm the results obtained using the Cox and the logit models and

suggest that financial liberalization reduces the overall inefficiency of a country's exports by sweeping out the products incompatible with its resource endowments.

Table 8: Distance to CA and Financial Liberalization

The dependent variable is a overall distance to comparative advantage. The specification accounts for country and time fixed effects. Robust standard errors are in parentheses *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)
Lib1_c	-0.013	-0.015	-0.028*
	(0.014)	(0.014)	(0.015)
postLib5		-0.034*	
		(0.017)	
Openc_c	-0.001**	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)
GDPpc	0.146	0.197	0.150
	(0.358)	(0.358)	(0.351)
BkD_c	-0.009	-0.003	0.006
	(0.037)	(0.037)	(0.036)
postLib10			-0.069***
			(0.021)
Constant	0.855	0.746	0.832
	(0.746)	(0.747)	(0.733)
Observations	935	935	935
R^2	0.831	0.832	0.833
Sample	Lib.	Lib	Lib

3.5 Financial Liberalization, Financial Development and Quality of Institutions

In this part, I empirically investigate the effect of financial liberalization on domestic financial markets, legal institutions and overall business environment. As proxies for the quality of domestic financial system, I use two standard proxies for stock market development (the ratio of total value traded on the stock market exchange to GDP and the equity market turnover) and two standard measures of banking sector development (the ratio of private credit of deposit banks to GDP and the ratio of private credit of deposit banks and other financial institutions to GDP). The data are taken from the database of Beck, Demirguc-Kunt, and Levine's (2009), which reports various indicators of financial development across countries and over time.

As proxies for the quality of domestic legal institutions and the intensity of government regulation, I use the indices of Legal Structure and Security of Property Rights (LSPR) and Regulation of Credit, Labor and Business (BCLR). These data are constructed by Gwartney and Lawson and can be found in the Economic Freedom Database (EFD) 2008. The indices are reported every five years from 1970 to 2005 for approximately 100 countries. The index of Legal Structure and Security of Property Rights consists of 4 components that measure

the judiciary independence from manipulation of the executive and legislative branches of government, the impartiality of the court system, the potential danger of military interference in rule of law and in the political process and the degree of protection of intellectual property rights. The index of Regulation of Credit, Labor, and Business encompasses various regulatory restraints that limit the freedom of exchange in credit, labor, and product markets. The list of restrictions includes restrictions on ownership of banks, foreign bank competition, private sector credit and interest rate controls for the credit market; minimum wage requirements, hiring and firing regulations, presence of centralized collective bargaining for the labor market and price control, administrative requirements (GCR), licensing restrictions, bureaucratic costs for product market. The indices vary from 1 to 10, with higher values indicating a better quality of the institutions in the country.

Given that the independent variables are very persistent, I include the lagged dependent variable in each specification. I include time effects to potentially control for a general trend towards financial and institutional development. For some of the variables, I have a limited number of observations, so that the time effects exhaust many degrees of freedom. Therefore, I run an alternative specification replacing the time dummies with world GDP growth. I run regressions on the restricted sample of countries that liberalized equity market during the period 1980-2000. Table 9 reports the results. The dependent variables are reported in the first column of the table. The coefficients of financial liberalization are reported in columns 2 and 3.

Financial liberalization has a positive and significant effect on the volume of credit of deposit banks and on the stock market turnover Results hold in both specifications, controlling for world GDP growth or year dummies. Financial liberalization does not have a robust effect on the other proxies of financial development. In one out of two specifications the financial liberalization dummy fails to be significant.

My results are in line with recent studies of Bekaert, Harvey, and Lundblad (2010) who find a significant relationship between stock market liberalization and financial development (both banking and stock market development), but do not find evidence for the reverse link (that is, financial development do not necessarily predict liberalization). Chinn and Ito (2006) also show a link between broad capital market openness and measures of financial development in a regression framework that is similar to my specification.

Financial liberalization has a beneficial effect on the business regulation proxied by the Index of Regulation of Credit, Labor and Business.[20] In both specifications the coefficient of financial liberalization is positive and significant at 10%. Results are less robust for the regression with index of Legal Structure and Security of Property Rights. When world growth is used as a control, the financial liberalization dummy loses significance.

While not definitive, my results suggest that financial liberalization may have some beneficial effects on the quality of domestic financial markets and legal institutions which are responsible for the allocation of resources in an economy.

[20] I have a panel with a 5 year gap, in the best case I have only 7 observations per country.

Table 9: Financial Liberalization and Quality of Institutions

The dependent variables are reported in the Column 1 and include various proxies for financial and institutional development. The regression is estimated using OLS including the lag dependent variable in the set of controls. Robust standard errors clusterred at country level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

(1)	(2)	(3)	Obs/Nmb of id
BkD_c	0.015*	0.015**	1262/42
	(0.013)	(0.012)	
$BkDA_c$	0.015*	0.002	1272/42
	(0.010)	(0.003)	
$StVal_c$	0.011	0.025**	903/42
	(0.014)	(0.012)	
$StTurn_c$	0.031**	0.032**	1537/42
	(0.014)	(0.013)	
$LSPR_c$	0.889***	0.102	176/41
	(0.336)	(0.219)	
$BCLR_c$	0.259*	0.335***	170/41
	(0.143)	(0.116)	
Lag dependent variable	YES	YES	
Time effect	YES	NO	
World GDPpc growth	NO	YES	
Sample	Lib.	Lib	

4 Conclusion

According to the Heckscher-Ohlin model, countries should export products that use their abundant and cheap factors of production and import products that utilize their scarce factors. These predictions may not hold in the presence of credit market frictions or active industrial policy of the government.

I find evidence that financial liberalization promotes more efficient allocation of the resources in the economy. I evaluate the impact of financial liberalization on the survival of different product categories using export data for 91 countries over the period 1975-2003. My results suggest that following equity market liberalization, the products incompatible with the country's factor endowments exit more and enter less to the country's export portfolio. The results remain valid after accounting for various alternative channels.

Financial liberalization is often associated with macroeconomic volatility, financial bubbles and banking crisis. Nevertheless, I find that the overall distance of a country's export portfolio to comparative advantage decreases which implies a more efficient exporting pattern. Therefore, financial liberalization is associated with a more efficient resources allocation in the economy afterwards.

I provide some insights into the channels through which financial liberalization may improve allocation efficiency. Consistent with previous empirical studies (see for example, Kaminksky and Schmukler, 2007; Bekaert et al., 2010), I find that financial liberalization is associated with improvements in two main sources of long term economic growth: financial development and institutional quality.

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APPENDIX A: THE COX PROPORTIONAL HAZARD MODEL

The duration of a country export for a given product is defined as the time (measured in years) when a trade relationship has been in existence without interruption. The distribution of durations can be characterized in terms of the hazard function which is defined as the instantaneous probability that a trade relationship is ended at time t given that it survives until time *t-1*.

$$h(t) = P(T = t|T \geq t, x) \; t = 1, 2, ...$$

The Cox Proportional Hazard model assumes that the hazard rate is the product of a unspecified baseline hazard function, which depends only on time, and the exponential function of the covariates.

$$h(t, x, \beta) = h_0(t) \exp(x.\beta)$$

This specification assumes that the covariates affect the hazard function independently on time the trade relatinship exists, shifting by the same magnitude all points of a baseline function. The coefficients can be interpreted as semi-elasticities, as they measure the effect of a change in the right-hand side variables on the log of the hazard rate.

Due to this structure, the Cox Proportional Hazard model is extremely versatile and can fit various models. The baseline hazard can vary across different groups, called stratas, but the vector of parameters is restricted to be the same.

$$h_j(t, x, \beta) = h_{j0}(t) \exp(x.\beta)$$

Since the baseline hazard function remains unspecified, only the order of duration provides information about the unknown parameters. The model is estimated by maximizing a partial likelihood function with respect to the vector of parameters β without specifying the form of the baseline hazard function $h_0(t)$. The estimated parameters reflect the relationship between the explanatory variables and the hazard function (i.e. the risk for a trade relationship to end).

There are several issues related to the duration analysis which need to be addressed. First, observations may be right-censored. This is the case when trade relationships are still in progress in the final year of the sample period. 22% of the observations are right censored. The Cox Proportional Hazard model can handle right censored observations. Second, observations may be left censored, which means that we cannot determine the date when they were initiated. In this situation, the actual length of the spells cannot be determined. To mitigate this problem, I estimate the model dropping the left censored observations, that is, the observations for which trade flows were recorded already in 1970. Such observations represent around 10% of all observations. Third, some trade relationships may have several periods of continuous exporting (spells). An exporter can enter the market, export for a while, exit and re-enter again. Such consecutive exits may be interrelated. The first exit may increase probability of the following exits. To account for this issue, I introduce a multiple spells dummy indicating the trade relationships with several spells. Around 6% of the observations in my sample have multiple spells.

APPENDIX B: STRATA OR FIXED EFFECT.

In stratified Cox model, the baseline hazard can vary across different groups while the coefficient β_x is constrained to be the same:

$$\begin{aligned} h(t|x_j) &= h_{01}(t) \exp(x_j \beta_x) \\ &\quad \text{if j is in group 1} \end{aligned}$$

$$h(t|x_j) = h_{02}(t)\exp(x_j\beta_x) \quad \text{if j is in group 2}$$

Lets instead include dummy variable taking value 1 if the observation belongs to the first group and 0 if it belongs to the second group to the set of regressors.

$$h(t|x_j) = h_0(t)\exp(x_j\beta_x + D)$$

This expression can be rewritten as :

$$h(t|x_j) = h_0(t)\exp(D) * \exp(x_j\beta_x)$$

Multiplicative term exp(D) takes value exp(1) if the observation belongs to the first group and exp(0) if it is in the second group.

Which implies that baseline functions of two groups differ by the factor of proportionality.

$$h(t|x_j) = h_0(t)\exp(1) * \exp(x_j\beta_x) \quad \text{if j is in group 1}$$

$$h(t|x_j) = h_0(t) * \exp(x_j\beta_x) \quad \text{if j is in group 2}$$

The above expressions can be written as:

$$h(t|x_j) = \tilde{h}_{0j}(t) * \exp(x_j\beta_x) \quad j = 1, 2$$

Stratification allows the baseline functions of two groups to have different shape. Therefore, introducing fixed effect can be viewed as a particular case of stratification where baseline functions differ across groups by the factor of proportionality.

APPENDIX C: COUNTRY COVERAGE

Liberalized during 1980-2000 (Restricted sample): Argentina, Bangladesh, Brazil, Chile, Colombia, Cote d'Ivoire, Ecuador, Egypt, Ghana, Greece, Iceland, India, Indonesia, Israel, Jamaica, Japan, Jordan, Kenya, Malaysia, Malta, Mauritius, Mexico, Morocco, New Zealand, Nigeria, Oman, Pakistan, Peru, Philippines, Portugal, Saudi Arabia, South Africa, South Korea, Spain, Sri Lanka, Thailand, Trinidad and Tobago, Tunisia, Turkey, Venezuela, and Zimbabwe.

Liberlized prior to 1980: Australia, Austria, Barbados, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Singapore, Sweden, Switzerland, United Kingdom, and United States

Remains closed until 2000:Algeria, Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Costa Rica, Dominican Republic, El Salvador, Fiji, Gabon, Gambia, Guatemala, Guyana, Haiti, Honduras, Iran, Kuwait, Madagascar, Malawi, Mali, Nepal,

Nicaragua, Niger, Norway, Paraguay, Rwanda, Senegal, Sierra Leone, Syria, Togo, Uruguay, and Zambia.

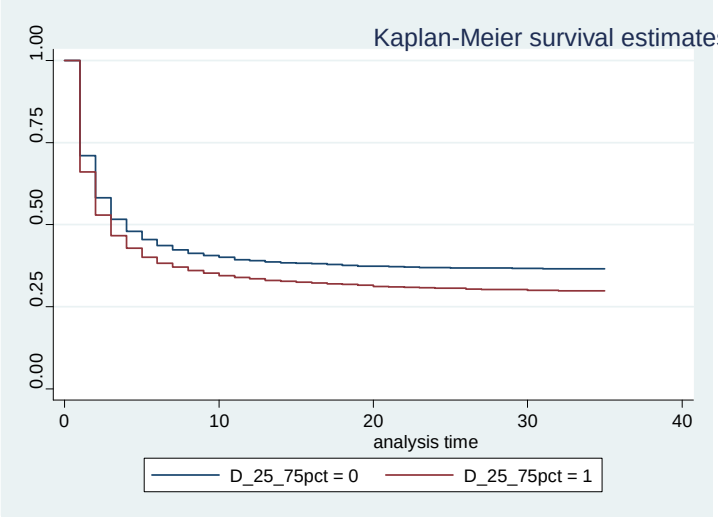
APPENDIX D: DESCRIPTION OF THE VARIABLES

Variable	Description
$Lib1_c$	Lib1 =0 for all spells that ends before financial liberalization
	and 1 otherwise
$Lib2_c$	Lib2 =0 for all spells that ends before financial liberalization
	Lib2>0 reflects the proportion of equity available for foreign investors
$Lib3_c$	Lib3 =0 for all spells that ends before financial liberalization,
	Lib3= 1 for all spells that started before and ended after liberalization
	Lib3= 2 for all spells that started after financial liberalization
$distance_{ck}$x $Lib\{1,2,3\}_c$	interaction term of the distance measure with the liberalization dummy
$distance_{ck}$	Euclidian distance of product k
$initial\_export_{ck}$	Value of export at the initiation of a trade relationship
$NSuppliers_{ck}$	Number of suppliers at the initiation the trade relationship
$tot\_y\_exp_{ck}$	Number of years of trading before the current spells.
$product\_export_k$	Total value of the product export to the World
$nspell_{ck}$	Number of spells
GDPpc	GDPpc of exporting country at the initiation the spell
$distance_{ck}$xGDPpc	Interaction term of GDPpc with the product distance measure
$distance_{ck}$x BkD_c	Interaction term of private credit to GDP with the product distance measure
BkD_c	Private credit to GDP at the initiation of the spell
$distance_{ck}$ x StM_c	Interaction term of private credit to GDP with the product distance measure
StM_c	Stock market capitalization to GDP at the initiation of the spell
$distance_{ck}$ x $Openc_c$	Interaction term stock market capitalization to GDP
	with the product distance measure
$Openc_c$	Trade openness of the country at the initiation of the spell,
	the ratio of sum of total export and import to GDPpc
ExtFinDep x Lib1	Interaction term of External Finance Dependence measure
	with the liberalization dummy
ExtFinDep	External Finance Dependence measure
TL_c	Trade liberalization dummy
$distance_{ck}$ x TL_c	Interaction term of trade liberalization dummy
	with the product distance measure
BC_c	Banking crisis dummy
$distance_{ck}$x BC_c	Interaction term of banking crisis dummy with the product distance measure
CC_c	Currency crisis dummy
$distance_{ck}$x CC_c	Interaction term of currencycrisis dummy
	with the product distance measure
$BkDA_c$	Ratio of private credit of deposit banks and other financial institutions to GDP
$StVal_c$	Ratio of total value traded on the stock market exchange to GDP
$StTurn_c$	Stock Market Turnover
$LSPR_c$	Legal Structure and Security of Property Rights Index
$BCLR_c$	Regulation of Credit, Labor and Business Index

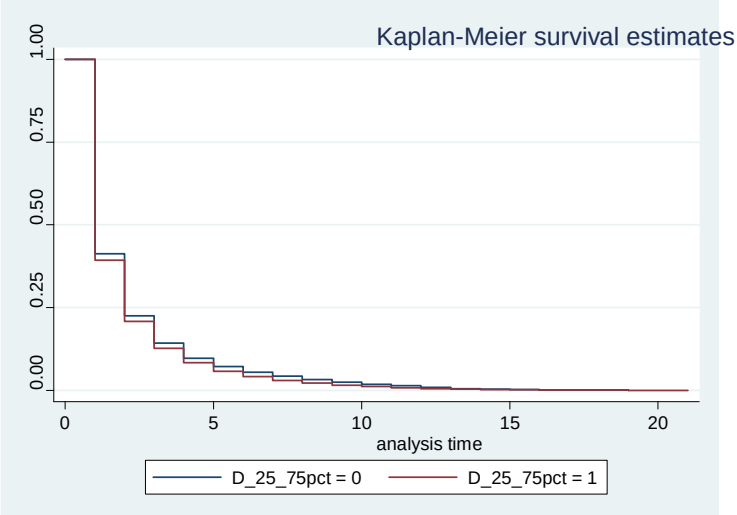
APPENDIX E: KAPLAN MEIER ESTIMATES OF SURVIVAL FUNCTIONS (CONT.)

Below are the graphs of the Kaplan Meier estimates of survival functions for the products that are below and above 25% and 75% percentile of the distance measure. It is visible that survival of all products increases following liberalization. But the distance between the survival functions of these two groups increases implying that the comparative disadvantage products have shorter relative survival following financial liberalization.

Survival of the products following financial liberalization,
Liberalized countries only, (lib=1)



Survival of the products before financial liberalization,
Liberalized countries only, (lib=0)



APPENDIX F: ALTERNATIVE MEASURE OF DISTANCE, FINANCIAL OPENNESS; DIFFERENT STRATIFICATION VARIABLE

Table A: Baseline Specification,Absolute Distance

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972), with SITC product code defining a stratification variable, controlling for country and time fixed effects. Robust standard errors clustered at (exporting country)*time level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$Lib1_c$	-0.908***			-1.523***		
	(0.036)			(0.049)		
$abs\_distance_{ck}$ x $Lib1_c$	0.068***			0.088***		
	(0.010)			(0.012)		
abs_distance	0.060***	0.061***	0.061***	0.020***	0.035***	0.030***
	(0.004)	(0.004)	(0.004)	(0.008)	(0.007)	(0.008)
$initial\_export_{ck}$	-0.062***	-0.064***	-0.063***	-0.059***	-0.064***	-0.061***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
$NSuppliers_{ck}$	-0.006***	-0.005***	-0.006***	-0.004***	-0.009***	-0.005***
	(0.000)	(0.000))	(0.000)	(0.001)	(0.001)	(0.001)
$tot\_y\_exp_{ck}$	-0.159***	-0.167***	-0.166***	-0.153***	-0.175***	-0.166***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
$product\_export_k$	-0.042***	-0.051***	-0.045***	-0.045***	-0.043***	-0.056***
	(0.005)	(0.005)	(0.005)	(0.009)	(0.009)	(0.009)
$nspell_{ck}$	0.265***	0.279***	0.280***	0.252***	0.312***	0.289***
	(0.004)	(0.004)	(0.004)	(0.007)	(0.006)	(0.006)
$Lib2_c$		-1.787***			-2.432***	
		(0.0842)			(0.134)	
$abs\_distance_{ck}$ x $Lib2_c$		0.110***			0.324***	
		(0.013)			(0.030)	
$Lib3_c$			-0.387***			-0.799***
			(0.024)			(0.042)
$abs\_distance_{ck}$ x $Lib3_c$			0.036***			0.051***
			(0.006)			(0.009)
Sample	All	All	All	Lib	Lib	Lib
Observations	187619	187619	187619	88758	88758	88758

APPENDIX F: ALTERNATIVE MEASURE OF DISTANCE, FINANCIAL OPENNESS; DIFFERENT STRATIFICATION VARIABLE

Table B: Capital Account Openness, All countries

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972), with SITC product code defining a stratification variable, controlling for country and time fixed effects. Robust standard errors clustered at (exporting country)*time level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variables	(1)	(2)	(3)	(4)
$FinOpen_c$	-0.014***			
	(0.004)			
$distance_{ck}$ x $FinOpen_c$	0.006***			
	(0.001)			
$distance_{ck}$	0.101***	0.074***	-0.203***	0.057***
	(0.006)	(0.007)	(0.020)	(0.013)
$initial\_export_{ck}$	-0.066***	-0.057***	-0.059***	-0.067***
	(0.002)	(0.002)	(0.002)	(0.002)
$NSuppliers_{ck}$	-0.005***	-0.007***	-0.007***	-0.005***
	(0.000)	(0.000)	(0.001)	(0.001)
$tot\_y\_exp_{ck}$	-0.179***	-0.136***	-0.129***	-0.179***
	(0.003)	(0.003)	(0.003)	(0.003)
$product\_export_k$	-0.046***	-0.034***	-0.029***	-0.045***
	(0.005)	(0.005)	(0.005)	(0.006)
$nspell_{ck}$	0.301***	0.197***	0.191***	0.310***
	(0.004)	(0.004)	(0.004)	(0.004)
$FinOpen\_av_c$		-0.036***		
		(0.010)		
$distance_{ck}$ x $FinOpen\_av_c$		0.004		
		(0.003)		
$CapOpen\_av_c$			-0.459***	
			(0.028)	
$distance_{ck}$ x $CapOpen\_av_c$			0.137***	
			(0.009)	
$distance_{ck}$ x $CapOpen_c$				0.019***
				(0.005)
$CapOpen_c$				-0.042***
				(0.011)
Sample	All	All	All	All
Observations	175218	148111	124955	148564

APPENDIX F: ALTERNATIVE MEASURE OF DISTANCE, FINANCIAL OPENNESS; DIFFERENT STRATIFICATION VARIABLE

Table B: Capital Account Openness, Liberalized

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972), with SITC product code defining a stratification variable, controlling for country and time fixed effects. Robust standard errors clustered at (exporting country)*time level are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variables	(5)	(6)	(7)	(8)
$FinOpen_c$	-0.133**			
	(0.055)			
$distance_{ck}$ x $FinOpen_c$	0.035			
	(0.023)			
$distance_{ck}$	0.074***	0.008	-0.331***	0.060***
	(0.023)	(0.040)	(0.038)	(0.020)
$initial\_export_{ck}$	-0.067***	-0.057***	-0.056***	-0.065***
	(0.002)	(0.002)	(0.002)	(0.002)
$NSuppliers_{ck}$	-0.007***	-0.009***	-0.009***	-0.008***
	(0.001)	(0.001)	(0.001)	(0.001)
$tot\_y\_exp_{ck}$	-0.190***	-0.134***	-0.129***	-0.191***
	(0.004)	(0.004)	(0.004)	(0.004)
$product\_export_k$	-0.040***	-0.023***	-0.010	-0.037***
	(0.008)	(0.008)	(0.008)	(0.008)
$nspell_{ck}$	0.339***	0.211***	0.201***	0.347***
	(0.006)	(0.007)	(0.007)	(0.006)
$FinOpen\_av_c$		-0.554***		
		(0.115)		
$distance_{ck}$ x $FinOpen\_av_c$		0.094**		
		(0.042)		
$CapOpen\_av_c$			-0.617***	
			(0.054)	
$distance_{ck}$ x $CapOpen\_av_c$			0.208***	
			(0.019)	
$distance_{ck}$ x $CapOpen_c$				0.015*
				(0.008)
$CapOpen_c$				0.011
				(0.020)
Sample	Lib	Lib	Lib	Lib
Observations	88758	69706	61181	77752

APPENDIX F: ALTERNATIVE MEASURE OF DISTANCE, FINANCIAL OPENNESS; DIFFERENT STRATIFICATION VARIABLE

Table C: Different Stratas

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972). Robust standard errors clustered at (exporting country)*time level are in parentheses. *, **, and *** denote statistica significance at the 10%, 5%, and 1% levels, respectively

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$Lib1_c$	-0.918***	-0.951***	-0.944***	-1.537***	-1.613***	-1.376***
	(0.037)	(0.037)	(0.044)	(0.050)	(0.057)	(0.050)
$distance_{ck}$ x $Lib1_c$	0.111***	0.125***	0.175***	0.149***	0.160***	0.174***
	(0.016)	(0.017)	(0.024)	(0.020)	(0.021)	(0.023)
$distance_{ck}$	0.098***	0.101***	-0.067***	0.023*	0.035**	-0.056**
	(0.007)	(0.007)	(0.015)	(0.013)	(0.015)	(0.022)
$initial\_export_{ck}$	-0.062***	-0.065***	-0.057***	-0.059***	-0.063***	-0.059***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
$NSuppliers_{ck}$	-0.006***		-0.011***	-0.004***		-0.010***
	(0.000)		(0.000)	(0.001)		(0.001)
$tot\_y\_exp_{ck}$	-0.159***	-0.149***	0.007**	-0.152***	-0.153***	-0.007
	(0.003)	(0.002)	(0.003)	(0.004)	(0.004)	(0.006)
$product\_export_k$	-0.043***		-0.081***	-0.045***		-0.082***
	(0.005)		(0.007)	(0.009)		(0.011)
$nspell_{ck}$	0.265***	0.255***		0.252***	0.250***	
	(0.004)	(0.004)		(0.007)	(0.007)	
Sample	All	All	All	Lib	Lib	Lib
Observations	187619	187619	187619	88758	88758	88758

APPENDIX G: DISTANCE TO COMPARATIVE ADVANTAGE

To mitigate the endogeneity problem arising from having product export share in the individual distances and in the weights used to compute this measure, I recompute product factor intensities for each country excluding the country in question from the sample of countries that is used to compute product factor intensities. Therefore, product factor intensities become product country and time varying. Results are presented below.

Table D: Distance to CA and Financial Liberalization

The dependent variable is a overall distance to comparative advantage The baseline specification accounts for country and time fixed effects. Robust standard errors are in parentheses *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)
$Lib1_c$	-0.021	-0.023	-0.037**
	(0.015)	(0.015)	(0.016)
postLib5		-0.047**	
		(0.0186)	
$Openc_c$	-0.002***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)
GDPpc	0.038	0.047	0.040
	(0.043)	(0.043)	(0.043)
BkD_c	-0.044	-0.036	-0.028
	(0.038)	(0.038)	(0.037)
postLib10			-0.074***
			(0.019)
Constant	1.490***	1.431***	1.405***
	(0.296)	(0.295)	(0.394)
Observations	931	931	931
Sample	Lib.	Lib	Lib
R^2	0.871	0.872	0.873

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

APPENDIX H: TWO WAY CLUSTERING

I have experimented with the two-way clustering using the procedure suggested by Cameron et al. (2006). The idea there is based on three variance matrices: first one is computed using clustering according to country, second one is based on clustering according to time and third one uses clustering alongside country*time dimension. The final variance matrix is the sum of first and second matrix, minus the third one. When resulting matrix is negative, I follow the rule of thumb suggested by Cameron et al. (2006), the standard errors of the coefficients are maximum of standard errors computed by clusterring along each dimension (e.g. country, year, country x time).The results of the baseline specification for the Cox Proportinal model is presented below.

Table E: Baseline, Different Proxies for Liberalization, 2-way clustering

The dependent variable is the hazard rate of an export relationship of product k from country c. All regressions are estimated using the stratified Cox Proportional Hazard Model (Cox 1972), with SITC product code defining a stratification variable, controlling for country and time fixed effects. Two way clustered standard errors are in parentheses. *, **, and *** denote statistica significance at the 10%, 5%, and 1% levels, respectively

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$Lib1_c$	-0.918***			-1.537***		
	(0.100)			(0.14)		
$distance_{ck}$ x $Lib1_c$	0.111***			0.149***		
	(0.027)			(0.040)		
$distance_{ck}$	0.098***	0.096***	0.098***	0.0226	0.044**	0.036**
	(0.011)	(0.012)	(0.015)	(0.014)	(0.026)	(0.017)
$initial\_export_{ck}$	-0.062***	-0.064***	-0.063***	-0.059***	-0.064***	-0.061***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
$NSuppliers_{ck}$	-0.006***	-0.006***	-0.006***	-0.004***	-0.009***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
$tot\_y\_exp_{ck}$	-0.159***	-0.167***	-0.166***	-0.152***	-0.175***	-0.165***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
$product\_export_k$	-0.043***	-0.052***	-0.046***	-0.046***	-0.044***	-0.057***
	(0.009)	(0.009)	(0.009)	(0.011)	(0.010)	(0.011)
$nspell_{ck}$	0.265***	0.279***	0.280***	0.252***	0.313***	0.290***
	(0.005)	(0.005)	(0.005)	(0.008)	(0.006)	(0.008)
$Lib2_c$		-1.789***			-2.470***	
		(0.110)			(0.331)	
$distance_{ck}$ x $Lib2_c$		0.176***			0.543***	
		(0.03)			(0.115)	
$Lib3_c$			-0.393***			-0.809***
			(0.075)			(0.142)
$distance_{ck}$ x $Lib3_c$			0.060***			0.086***
			(0.014)			(0.02)
Sample	All	All	All	Lib	Lib	Lib
Observations	187619	187619	187619	88758	88758	88758